

REMARKS

Claims 1-2, 14 and 25-27 are pending. The support for the claim amendments are as follows: Claims 26 and 27: [0013] and working Examples. No new matter is added.

Claims 1, 2, 14 and 25 are indicated as allowable on p.3 of the Office Action.

Claims 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Wisnudel US 6,925,051. (Office Action, page 2)

Claims 26 and 27 have been amended such that the ultraviolet curable composition of an optical disc does not contain a reactive dye.

As described in the column 4, lines 1 to 5 of Wisnudel, the data storage media thereof includes an adhesive layer containing a reactive dye such as an essentially colorless dye (e.g., methylene blue) and one or more additives. Wisnudel discloses limited play data storage media. A general method for forming limited play data storage media is disclosed in Wisnudel wherein a coating, which includes a reactive dye and optionally also includes one or more other additives, is deposited on the surface of a disc. Upon exposure to oxygen, said reactive dye, which is initially colorless, is oxidized after passage of a predetermined time to form a colored coating such as an opaque or semi-opaque layer. (Please refer to the column 1, lines 57 to 63 of Wisnudel) Such a colored layer prevents reproduction of the storage media.

Problems of the general limited play data storage media are also disclosed in Wisnudel such that the reactive dye method is defeated by illegal photo-bleaching of an opaque or semi-opaque layer of the general limited play data storage media. (Please refer to the column 2, lines 3 to 5 of Wisnudel.) That is, photo-bleaching enables use of a limited play data storage media even after passage of a predetermined time, against the will of the manufacturer of the limited play data storage media.

In order to prevent such photo-bleaching of the opaque or semi-opaque layer, limited play data storage media of Wisnudel includes a photo-bleaching retarder material. Resorcinol, 4-hexylresorcinol and polyhydroxystyrene are cited as the photo-bleaching retarder in Wisnudel. (Please refer to Abstract of Wisnudel.) Accordingly, the limited play data storage media of Wisnudel include a reactive dye, which enables formation of the opaque or semi-opaque layer.

As for the claimed invention, the ultraviolet curable composition of an optical disk of Claim 1 of the present invention, which has been amended as described above, does not include a reactive dye.

The present invention is achieved based on the following inventor's findings.

(i) The inventors found that, unpreferable blackening is caused when an optical disk comprising a reflective layer made of silver or an alloy containing silver as a main component is exposed to room light such as fluorescent lamp. Such a blackening causes unpreferable decrease in reflectance and unpreferable increase in PI error. (Please refer to the recitation on page 7, lines 9 to 17 of the present specification.) The inventors decided to solve this problem in order to improve practical characteristics of such an optical disk.

(ii) Due to studying and examination, the inventors found that, although blackening seems to be caused by oxidation of silver on the first sight, the blackening is actually caused by migration of silver, which has been included in a reflective layer made of silver or an alloy containing silver as a main component, into an adhesive layer which is adjacent to the reflective layer. It is a surprising finding since it has been believed that blackening is caused by oxidation of silver in general in such a case that silver exists.

(iii) The inventors further found that it is possible to overcome the above problem due to a specific optical disk of the present invention. The optical disk of the present invention includes a reflective layer, which is made of silver or an alloy containing silver as a main component but does not cause blackening even when exposed to room light. The specific optical disk can prevent the immigration of silver in a reflective layer into an adhesive layer, due to a specific compound in a reflective layer.

In order to explain the claimed invention better, a Declaration under 37 CFR 1.132, wherein the above phenomenon (ii) and (iii) are explained is submitted. (Experiments shown in the Declaration were conducted when a response to International Search Report was prepared.)

Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji US 2001/0017819 in view of Hagiwara US 6,071,667. (Office Action, page 3)

The rejection stated that US 2001/0017819 discloses a medium including a silver reflective layer and a UV-curable protective layer, and the protective layer is formed of a radical polymerizable compound, photoinitiator, and a polymerization inhibitor. The rejection also

stated that US 6,071,667 discloses that resorcinol can be used as a polymerization inhibitor, and it would have been obvious to a person with ordinary skill in the art to substitute one known inhibitor for another.

However, in the present invention, a compound represented by the formula (6), gallic acid, 2-hydroxyhydroquinone and resorcinol disclosed in Claims 26 and 27 of the present application are used not for inhibiting polymerization but for preventing immigration of silver to an adhesive layer. The unexpected effects of the present invention are shown in the Declaration under 37 CFR 1.132.

In view of the above amendment, applicant believes the pending application is in condition for allowance. It is respectfully requested that the rejection be reconsidered and withdrawn.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

Dated: November 16, 2009

Respectfully submitted,

Customer No. 21874

Electronic signature: /James E. Armstrong, IV/
James E. Armstrong, IV
Registration No.: 42,266
EDWARDS ANGELL PALMER & DODGE
LLP
P.O. Box 55874
Boston, Massachusetts 02205
(202) 478-7375
Attorneys/Agents For Applicant

Declaration